REPORT

Sandsfield Gravel Company Ltd

Milegate Eastern Extension Quarry and Landfill

Dust Management Plan

Submitted to:

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Distribution List

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1.0 INTRODUCTION

1.1 General

This Dust Management Plan (DMP) has been prepared by Golder, member of WSP in UK (Golder), on behalf of Sandfield Gravel Company Ltd (Sandsfield). This DMP outlines the approach to the management and minimisation of potential dust emissions and assesses dust levels, sources and pathways during operational activities comprising the excavation and movement of top soil, subsoil, and bulk/engineered fill at the site.

The DMP serves as a consistent point of reference for environmental considerations throughout the operational period for Sandsfield and East Riding of Yorkshire Council. Potential dust impacts from the landfilling of non-hazardous waste are also managed in accordance with the Environmental Permit and this DMP should be implemented in conjunction with the Nuisance and Health Management Plan. The other potential dust sources were assessed as of low significance.

This DMP is a 'live' document, which shall be updated accordingly as the project is progressed. Consequently, the DMP should be reviewed after 12 months operation at the site and revised as required.

1.2 Site Setting

The environmental setting of the Site is shown in **Drawing PAS7 – Environmental Setting (Original Site) (S.73)**, **Drawing PAS8 – Environmental Setting (Northern Extension) (S.73)** and **Drawing PAS9 – Environmental Setting (Eastern Extension) (Full)**.

The Site lies in an area of relatively flat land, with ground elevations varying from 5 to 15 m AOD. Ground levels across the Site typically fall gently to the south and east towards the Milldam Beck, which lies at an approximate elevation of 5 m AOD. In general terms, much of the area surrounding the Site has been worked for the extraction of sand and gravel, and this has resulted in a number of pits that have been restored to ponds or restored by the disposal of waste as landfill.

To the immediate north of the Site lie open fields. The Moor Main Drain flows along the northern side of the Eastern Extension and joins the Milldam Beck in the northeast corner which then flows around the eastern and southern margins of the Site. Catfoss Airfield, a former RAF base, lies approximately 600 m north of the Site, and extends beyond 1 km from the Site. The airfield is now used as an industrial estate.

Beyond the Milldam Beck to the east are open fields and a minor road passing north to south on which Manor Farm and Catfoss Cottages are located approximately 625 m east of the Site. Beyond this road and residential properties are open fields.

The Site is bound on its southern edge by the Milldam Beck, which flows westwards and discharges to New Drain approximately 600 m southwest of the Site. Beyond the Milldam Beck, there are number of surface water ponds (flooded remains of sand and gravel workings) which are used for coarse fishing. Approximately 250 m southwest of the Site lies Catwick Lane, a minor road orientated northwest to southeast. Beyond Catwick Lane and extending beyond 1 km from the Site, is an area comprising landfill sites (Fosse Hill Quarry, New Feeding Pasture, Pit Field and Catwick Grange Landfills), flooded gravel pits, and open fields. To the southeast are Sandsfield's operations including active workings and Plant Pit 2 and Plant Pit 3 landfills, which are consented under separate planning permissions. Beyond these workings to the southeast are closed historic landfill sites (Westlands Hill East, Catfoss, Catwick Crossroads, Hill Top House and Westfield Farm Landfills).

Adjacent to the western boundary of the Site lies Milegate Landfill. This was historically operated as a quarry and was fully restored by Sandsfield and is now closed. A trading estate (off Catwick Lane) is located approximately 200 m northwest of the Site and extends to approximately 800 m northwest of the Site. The A165 passes north to south about 800 m west of the Site beyond which are further fields and then the village of Brandesburton.

1.3 Site Operations

The proposed development aims to allow continued and uninterrupted mineral extraction to extend from the original Site and Northern Extension into the neighbouring field to the east (the 'Eastern Extension'). This area of land is currently in agricultural use. The direction of working will be eastwards through the existing quarry sidewall to 'chase the mineral' clockwise around the north end of the site and then southwards once a working face has been established across the full, west to east, width of the site. Mineral would be extracted at a typical rate of 100,000 tonnes/annum currently proposed to start in 2023 and finish in 2030 (seven years).

The proposed development also aims to allow continued and uninterrupted landfilling operations, to follow mineral extraction operations. The Eastern Extension is proposed to be completed within the timeframe already permitted for the existing operations i.e. before February 2038. The waste mass will extend from the existing Site into the Eastern Extension (i.e. one continuous waste mass) and will be restored in one integrated Restoration Plan. Landfilling is proposed to start in Cell 9 in 2025 and finish in 2034 (nine years), followed by capping and restoration. The site will be worked progressively with the objective, as far as is operationally and economically practicable, of minimising the site area that is disturbed and unrestored at any one time.

In addition to the extraction and export of mineral and the import and deposition of non-hazardous waste, the development will include the movement and placement of overburden and interburden which comprise clays, silts and sands that have no commercial mineral value but are suitable for use as:

- Infill to areas outside the quarry perimeter in the northwest, northeast and southwest corners (but within the planning permission boundary) to achieve the required smooth restoration levels as shown in the Restoration Plan;
- Infill to areas outside the landfill perimeter and within the quarry perimeter to achieve the required levels for the installation of basal and sidewall landfill lining systems;
- Subgrade to be placed over the finished waste (in both the existing Site and the Eastern Extension) to create a smooth surface prior to placement of the low permeability capping layer of the landfill; and
- Restoration sub soils and top soils above the capping layer, as shown in the Restoration Plan.

It is noted that the mineral extraction and landfill operational processes and procedures are well established and have been satisfactorily implemented at the Site since 2000 and 2007 respectively.

2.0 LEGAL COMPLIANCE

This DMP is based on measures to ensure legal compliance and to establish good management practice and includes compliance with the following:

- Air Quality Standards Regulations 2010 (as amended); and
- Environmental Protection Act 1990.

Sandsfield will comply with the DMP in order to meet relevant air quality legislation and best practice with regard to loss of amenity and nuisance due to the impact of dust emissions. In the UK, there is no official Air Quality Standard (AQS) level for the total dust deposition rate that would be considered to create a nuisance. An 'unofficial' nuisance dust deposition rate widely accepted is an annual mean of 200 mg/m^2/day for the total dust deposited.

3.0 RECORD KEEPING

The Site Manager or nominated deputy will be responsible for dust management and for maintaining a register of monitoring which will be made available for auditing and inspection.

An up-to-date copy of the DMP will be maintained at the Site Reception office.

Records of formal visual site inspections (undertaken daily, and more frequently during periods of high winds, by the Site Manager or nominated deputy) and any complaints will be maintained. The following points will be noted with regards to visual inspections and response to complaints:

- Any elevated dust levels, meteorological conditions and any actions undertaken;
- Any increase in the frequency of site inspections and dust issues on-site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions;
- Any exceptional incidents that cause dust emissions, either on-or off-site, and the action taken to resolve the situation; and
- Full details of any dust complaints including complainant name, location and contact details, identification of cause(s), and any appropriate measures taken to reduce emissions in a timely manner.

4.0 AUDITING AND REVIEW

Audits of the DMP will be undertaken by Sandsfield. The audit will check that all necessary documentation is held. Visual monitoring and complaints records will be audited to ensure that full records are kept and all necessary information is recorded. An audit schedule will be arranged but will include an annual audit, as a minimum requirement.

To ensure the DMP remains ‘fit for purpose’ for the duration of the project, it will be regularly reviewed and updated to facilitate efficient and effective delivery of the project legal and environmental commitments. A log will be kept including a summary of the update and a record of the review.

Reviews of the DMP will be undertaken and recorded by Sandsfield with the findings of the reviews reported to the Site Manager and other staff members as required.

5.0 POTENTIAL FOR EMISSIONS

Dust and emissions arising from excavation, soil movement and restoration activities can cause health risks to receptors and nuisance and annoyance to local residents and businesses. The level of dust emitted will be dependent on the activity undertaken, the location of the activity on Site, and the nature of the dust. The generation and dispersion of the dust will be influenced by other meteorological factors such as wind speed and direction and/or, periods of dry weather. Traffic movements have potential to generate dust emissions as vehicles move within the site.

In general terms, adverse dust impacts from sand and gravel quarry-type activities are uncommon beyond 250 m (and beyond 400 m from hard rock quarries) measured from the nearest dust generating activities. It is commonly accepted that the greatest impacts will be within 100 m of a source and this can include both large

(>30 µm) and small dust particles[1]. From the nature of the proposed operations, adverse impacts due to nuisance dust are therefore most likely to be experienced within this distance.

The principal potential sources of airborne dust associated with the proposed development include:

- Soils (top soil and subsoil) stripping, stockpiling and replacement;
- Excavation of overburden and interburden materials;
- Loading and tipping;
- Engineered fill operations;
- Bulk fill operations;
- Landscaping works associated with the Milldam Beck Corridor;
- Haulage of material around the site; and
- Wind blow across stripped areas, stockpiles and other loose bare surfaces.

Potential dust impacts from the landfilling of non-hazardous waste are managed in accordance with a Nuisance and Health Management Plan regulated by the Environment Agency in accordance with the Environmental Permit. The other potential dust sources were assessed as of low significance.

6.0 MITIGATION MEASURES

6.1 General

Mineral extraction, soil excavation and movement, filling and restoration activities are transient operations where a number of processes take place over relatively large areas but for relatively short periods. Dust emissions can occur at a number of stages but these can be significantly controlled by best practice such as:

- Appropriate design and phasing of the works including layout and working procedures;
- Using and properly maintaining carefully selected equipment;
- Understanding the potential for dust emissions to occur;
- Training and supervising site staff in dust control; and
- Applying appropriate mitigation measures.

A range of dust control and mitigation measures are set out. These include dust containment, where dust emissions are minimised through use of appropriate equipment and systems; dust suppression, where dust emissions are controlled by the use of water sprays etc. and dust management, where the potential for dust emissions to occur are reduced through effective control of site operations.

Standard good practices as detailed in PGN 3/08(12)[2] are relevant to the proposed development. The essence of the guidance is the control of emissions through good site management. The points below identify mandatory mitigation measures and recommended best practice.

[1] Institute of Air Quality Management (2016). Guidance on the Assessment of Mineral Dust Impacts for Planning (v1.1)

[2] Process Guidance Note (PGN) 3/08 (12) *Statutory guidance for quarry processes* (Defra, 2012)

6.2 Weather

As an over-riding requirement, if during dry windy weather any operations are identified as causing or likely to cause visible emissions across the site boundaries, or if abnormal emissions are observed within the site, the Site Manager or nominated deputy will immediately modify, reduce or suspend those operations until either effective remedial actions can be taken or the weather conditions giving rise to the emissions have moderated.

6.3 Soils Stripping, Removal from Stockpiles/Bunds and Reinstatement

Soils handling is generally a short-lived seasonal activity and there usually is flexibility as to its timing.

Topsoil may give rise to airborne dust during stripping, removal from stockpiles/bunds and reinstatement operations, particularly as they are likely to be handled in a dry friable condition.

Subsoils/overburden tend to be damper and more cohesive than the topsoils and are less likely to be a significant source of dust. The significance of the potential impacts will be reduced by the short duration of soils handling in any one season.

Unacceptable dust emissions can be controlled by minimising working of soil in very dry, windy conditions, by reducing drop heights at material transfer points and controlling vehicle speeds.

Soils handling shall be suspended when the wind conditions would be likely to result in visible dust being carried towards off-site receptors. Soil storage mounds shall be seeded as soon as practicable for stabilisation and to reduce the risk of wind-blow from exposed surfaces.

6.4 Overburden and Interburden Excavation

Overburden and interburden will be extracted ‘as-dug’ and a dry working method will be employed to maintain the quarry in a dry condition. There will be a requirement for excavation dewatering and discharge of water from the quarry.

Additional control measures (such as wetting down with water sprays or trailed bowser, or cessation of activities in unsuitable weather conditions) will be employed if there is a risk of visible dust from the extraction faces being blown over the site boundary towards off-site receptors.

6.5 Loading and Tipping

Loading and tipping operations within the working area are unlikely to result in visible dust emissions. However, drop heights shall be controlled during all loading and tipping operations, particularly of soils near sensitive boundaries to minimise the entrainment of dust into the atmosphere.

6.6 Bulk Fill Operations

Bulk fill operations will deal principally with cohesive materials; consequently, the filling operations are unlikely to result in any significant dust emissions.

6.7 Site Haulage

Haulage of soil materials across the Site is typically considered the greatest source dust. The impact is increased over longer distances, when speeds tend to be greater and more effort is required to maintain a smooth damp running surface.

On site vehicle movements will be used to transport material between areas of excavation and restoration which has the potential to generate dust and some of which will take place adjacent to the site boundaries. Where practicable, all site traffic will keep to designated haul routes to reduce the creation and subsequent entrainment of fine material into the atmosphere.

Standard good practices for site haulage include:

- Avoiding abrupt changes in horizontal and vertical alignment;
- Regular clearing, grading and maintenance of haul routes;
- Keeping to the designated site speed limit;
- Ensuring that heavy plant is fitted with upswept exhausts and radiator fan shields;
- Evenly loading vehicles to avoid spillages; and
- Regular application of water, whether by bowser or by fixed sprays, in dry conditions.

Haul routes across the surface of the site shall be located where possible in positions which are remote from sensitive site boundaries.

6.8 Road Transport

Access to the Site is obtained from Catwick Lane via Sandsfield's Site reception and offices that serve the quarry and landfill operations, and the adjacent waste transfer station. The entrance has secure steel and mesh gates to prevent non-operational vehicle access, which also prevents unauthorised access to the quarry and landfill. The haul road leading from the reception to the quarry and landfill is constructed from hardcore.

Nearly all vehicles arriving at the Site will carry non-hazardous waste managed in accordance with a Nuisance and Health Management Plan regulated by the Environmental Permit.

6.9 Wind Blow across Bare Ground and Stockpiles

During dry conditions, wind-blown dust emissions are potentially significant and might be carried for a considerable distance when strong winds blow across large open areas of loose or bare ground. During soil stripping, wind-blown dust might be raised from the freshly exposed surface.

Strong winds may blow directly at the mineral extraction face as prevailing winds blow from the southwest but, due to its inherent dampness, dust is only likely to be raised during prolonged dry weather and is unlikely to be in significant quantities.

The effects of wind blow across stripped surfaces, unpaved vehicle circulation areas, stockpiles and areas of bare ground will be managed by ensuring that:

- The extent of such areas is kept to a minimum;
- Loose materials are removed or treated; and
- Such areas are wetted down as necessary.

During dry conditions, unpaved circulation areas and the surfaces of stockpiles in the open will be watered using fixed sprays or a water bowser.

6.10 Other Matters

General matters and the management of the site can affect the likelihood of significant dust emissions. These include:

- The use of clean water for dust suppression to avoid recirculating fine material;
- High standards of housekeeping to minimise track-out and wind-blown dust; and
- Effective staff training in respect of the causes and prevention of dust.

7.0 MAINTENANCE OF PLANT AND EQUIPMENT

Effective control of airborne dust emissions requires the maintenance and proper operation of all plant and equipment, including fixed and mobile dust extraction and suppression equipment. A programme of planned maintenance will be carried out on all plant and equipment in accordance with the manufacturers' recommendations to ensure that it operates at optimum efficiency.

Stocks of essential spares and consumable items will be held at the site or kept readily available for use at short notice.

Any malfunction or breakdown leading to abnormal emissions will be dealt with promptly and operations will be modified or suspended until normal working can be restored. All such malfunctions, and the actions taken, will be recorded in the site logbook.

8.0 SITE MANAGEMENT

The Site Manager shall exercise, either personally or by delegation to suitably trained and responsible staff, day-to-day control of the site. The Site Manager will be responsible for the satisfactory working of the whole site and for ensuring full compliance with the Dust Management Plan.

Staff at all levels shall receive the necessary training and instruction in their duties relating to all operations and the potential sources of dust emissions. Particular emphasis will be given to plant and equipment malfunctions and abnormal conditions.

The Site Manager shall ensure that customers and suppliers are aware of the need to comply with the provisions of this plan so far as they are relevant to their activities on site.

Any member of staff who fails to comply with the provisions of the dust management and monitoring plan shall be re-trained as necessary.

9.0 EMERGENCY RESPONSE

An emergency response procedure, to be followed in the event of a major dust emission, shall be kept at the site office. For the purposes of emergency response, major dust emissions will be defined as including:

- Visible dust crossing the site boundaries;
- Persistent fugitive dust from transport or plant movements; and/or
- Persistent wind-blown dust.

The contact details of key personnel will be listed in the procedure.

10.0 COMPLAINTS

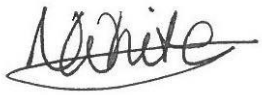
All dust complaints shall be recorded and reported to the Site Manager or nominated deputy, who shall investigate the circumstances and ensure that the necessary corrective measures are taken. A prompt response will be made to the complainant and a record, including copies of all correspondence and telephone file notes, will be made in the complaints register.

East Riding of Yorkshire Council (ERYC) shall be notified of any dust complaint received by the Site or, conversely, ERYC may notify Sandsfield of any dust complaint which it may receive. Sandsfield shall liaise with ERYC in considering the findings of any subsequent investigation and any corrective measures which may have been taken.

In the event of any substantiated complaint, the effectiveness of the Dust Management Plan shall be reviewed.

Signature Page

Golder WSP



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